

AMENDMENTS TO THE CLAIMS

It is respectfully requested that the claims be amended without prejudice, without admission, without surrender of subject matter, and without intention of creating any estoppel as to equivalents, as follows. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended). A method of flow cytometry, comprising the steps of:
 - a. obtaining sperm cells of a male of a species of mammal;
 - b. injecting said sperm cells at an injection point along the central longitudinal axis of into a fluid stream, ~~having a central longitudinal axis, at an injection point;~~
 - c. forming a plurality of droplets in said fluid stream;
 - d. entraining each one of said sperm cells in a portion of said plurality of droplets;
 - e. analyzing sperm cells in said portion of said plurality of droplets;
 - f. discriminating between said sperm cells to generate two populations based upon at least one sperm cell characteristic; and
 - g. ~~built-in-selectably and variably axially adjusting~~ adjustably varying axial location of said injection point of said sperm cells ~~in said fluid stream~~ along said central longitudinal axis in said fluid stream to increase resolution of said at least two populations of said sperm cells.
2. (Previously presented). A method of flow cytometry as described in claim 1, wherein said male of said species of mammal is selected from the group consisting of a bovine species of mammal, an equine species of mammal, a ovine species of mammal, a canine species of mammal, a feline species of mammal, swine species of mammal, a marine species of mammal, and a deer species of mammal.

3. (Original). A method of flow cytometry as described in claim 1, wherein said fluid stream comprises a sheath fluid.
4. (Previously presented). A method of flow cytometry as described in claim 3, wherein said sheath fluid comprises a sheath fluid having a buffer selected from the group consisting of a citrate buffer, a phosphate buffer, and a HEPES buffer.
5. (Currently amended). A method of flow cytometry as described in claim 1, wherein said step of obtaining sperm cells of a male of a species of mammal comprises the step of obtaining sperm cells of a first species of mammal and obtaining sperm cells of a second species of mammal and wherein said step of adjustably varying axial location of ~~adjusting~~ said injection point of said sperm cells along said central longitudinal axis ~~[[in]]~~ in said fluid stream to increase resolution of said at least two populations of said sperm cells comprises the step of establishing a first injection point of said sperm cells of said first species of mammal at a first location along said central longitudinal axis ~~within~~ in said fluid stream to increase resolution of said at least two populations of sperm cells and the step of establishing a second injection point of said sperm cells of said second species of mammal at a second location along said central longitudinal axis ~~within~~ in said fluid stream to increase resolution of said at least two populations.
6. (Currently amended). A method of flow cytometry as described in claim 1, wherein said step of adjustably varying axial location of ~~adjusting~~ said injection point of said sperm cells along said central longitudinal axis ~~[[in]]~~ in said fluid stream to increase resolution of said at least two populations of said sperm cells comprises the step of adjustably varying axial location ~~adjusting position~~ at which a particle injector introduces said sperm cell ~~[[into]]~~ in said fluid stream.
7. (Currently amended). A method of flow cytometry as described in claim 6, wherein said step of adjustably varying axial location of ~~adjusting position~~ at

which a particle injector introduces said sperm cell ~~[[into]]~~ in said fluid stream ~~further comprises the step of~~ comprises the step of providing a axially slidly adjustable coupling between said particle injector and a nozzle body.

8. (Currently amended). A method of flow cytometry as described in claim 6, wherein said step of adjustably varying axial location of ~~adjusting position~~ at which a particle injector introduces said sperm cell ~~[[into]]~~ in said fluid stream ~~further~~ comprises the step of operating a mated pair of spiral threads between said particle injector and a nozzle body.
9. (Currently amended). A method of flow cytometry as described in claim 6, wherein said step of adjustably varying axial location of ~~adjusting position~~ at which a particle injector introduces said sperm cell ~~[[into]]~~ in said fluid stream ~~further~~ comprises the step of replacing said particle injector with a second particle injector to alter distance between said injection point of said sperm cells into said fluid stream and a nozzle orifice through which said fluid stream flows.
10. (Currently amended). A method of flow cytometry as described in claim 1, wherein said step of adjustably varying location of ~~adjusting~~ said injection point of said sperm cells along said central longitudinal axis in said fluid stream to increase resolution of said at least two populations of said sperm cells ~~further~~ comprises the step of adjustably varying axial ~~adjusting~~ distance between said injection point of said sperm cells ~~[into]~~ along the central longitudinal axis in said fluid stream and a nozzle orifice through which said fluid stream flows.
11. (Currently amended). A method of flow cytometry as described in claim 1, wherein said fluid stream has fluid stream characteristics and wherein said step of adjustably varying axial location of ~~adjusting~~ said injection point of said sperm cells in said fluid stream along said central longitudinal axis to increase resolution of said at least two populations of said sperm cells ~~further~~ comprises the step of adjustably varying axial location of ~~adjusting~~ said injection point of said sperm cells ~~based upon~~ in

response to said fluid stream characteristics.

12. (Currently amended). A method of flow cytometry as described in claim 1, wherein said fluid stream has altered fluid stream characteristics and wherein said step of adjustably varying axial location of ~~adjusting~~ said injection point of said sperm cells in said fluid stream along said central longitudinal axis to increase resolution of said at least two populations of said sperm cells further comprises the step of adjustably varying axial location of ~~adjusting~~ said injection point of said sperm cells ~~based upon~~ in response to said altered fluid stream characteristics.
13. (Original). A method of flow cytometry as described in claim 1, further comprising the step of separating said sperm cells into first population of sperm cells and a second population of sperm cells.
14. (Currently amended). A method of flow cytometry as described in claim 13, wherein said step of discriminating between said sperm cells to generate two populations based upon at least one sperm cell characteristic further comprises the step of discriminating between said sperm cells based upon a sex characteristic, and wherein said first population of sperm cells bear an X-chromosome and said second population of sperm cells bear a Y-chromosome.
15. (Withdrawn). A flow cytometer, comprising:
 - a. a fluid stream;
 - b. a nozzle body in which said fluid stream flows;
 - c. a nozzle orifice at which said fluid stream exits said nozzle;
 - d. a particle source;
 - e. a particle injector fluidically coupled to said particle source which entrains at least one particle at a location in said fluid stream; and
 - f. a selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle.

16. (Withdrawn). A flow cytometer as described in claim 15, wherein said particle comprises a cell.
17. (Withdrawn). A flow cytometer as described in claim 15, wherein said particle comprises a sperm cell.
18. (Withdrawn). A flow cytometer as described in claim 15, wherein said sperm cell is obtained from a male of a species of mammal selected from the group consisting of a bovine species of mammal, an equine species of mammal, a ovine species of mammal, a canine species of mammal, a feline species of mammal, swine species of mammal, a marine species of mammal, and a deer species of mammal.
19. (Withdrawn). A flow cytometer as described in claim 15, wherein said selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle comprises slidly adjustable engagement between said particle injector and said nozzle orifice.
20. (Withdrawn). A flow cytometer as described in claim 15, wherein said selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle comprises a pair of mated spiral threads engaged between said particle injector and said nozzle orifice.
21. (Withdrawn). A flow cytometer as described in claim 15, wherein said selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle comprises replacement of said particle injector with a second particle injector which entrains said at least one particle at a second location in said fluid stream.
22. (Withdrawn). A flow cytometer, comprising:
 - a. a fluid stream;

- b. a nozzle body in which said fluid stream flows;
- c. a nozzle orifice at which said fluid stream exits said nozzle;
- d. a particle source;
- e. a particle injector fluidically coupled to said particle source which entrains at least one particle at a selectably variable location in said fluid stream.

23. (Canceled).

24. (Withdrawn). A flow cytometer, comprising:

- a. a fluid stream;
- b. a nozzle body in which said fluid stream flows;
- c. a nozzle orifice at which said fluid stream exits said nozzle;
- d. a particle source;
- e. a conduit which fluidically couples said particle source to said nozzle body;
- f. a particle injector coupled to said conduit which entrains at least one particle at a location in said fluid stream; and
- g. a selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle.

25. (Withdrawn). A flow cytometer, comprising:

- a. a nozzle having a nozzle orifice;
- b. a particle injector selectably adjustably positional within said nozzle, whereby positional adjustment of said particle injector alters distance between injection point of said particle injector and said nozzle orifice.

26. (Canceled).

27. (Currently amended). A method of flow cytometry as described in claim 6 wherein said step of adjustably varying axial location ~~adjusting position~~ at which a particle injector introduces said sperm cell ~~[[into]]~~ in said fluid stream further comprises

the step of adjustably varying axial location ~~adjusting position~~ of said particle injector with a keyed stop mated with a nozzle body.